

## 5.0 SUMMARY AND CONCLUSIONS

### 5.1 STORMWATER DRAIN SUMMARY

Sediments from both of the catch basins and near the outfalls in the river exhibited PCB Aroclor 1260 concentrations; catch basin and outfall #1 exhibited concentrations above the selected benchmark screening value for PCBs. Several PAHs and metals were present above screening values in all locations. Acetone and carbon disulfide were detected at concentrations above selected benchmark values in both catch basins and TBT was detected above the selected benchmark value at catch basin #2. It appears that maintenance activities conducted near the catch basins have impacted the sediment within the catch basins and that sediment has been transported into the river.

### 5.2 IN-WATER PILES SUMMARY

Three debris piles containing electrical equipment were found and delineated in the offshore area of Bradford Island. The approximate extent and volume (313 cubic yards) of electrical debris in the water has been delineated. The number and locations of debris piles are similar to the areas described and drawn by employees interviewed during the Final Site Investigation (Tetra Tech, 1998). No further debris associated with the landfill is expected in the offshore area proximate to the Bradford Island Landfill.

Investigation of the sediment in the debris piles resulted in partial delineation of the extent of contamination. PCBs in sediments within Pile #1 area was limited to samples taken within the debris pile, while PCBs in sediments within Pile #2 area was detected within and on the perimeter of this pile. Sediments proximate to the debris pile discovered during this investigation (Pile #3) have not yet been evaluated. Besides PCBs, other chemicals found in sediment that exhibited concentrations above screening values include selected metals in Pile #1 and Pile #2, and PAHs in Pile #2.

Water column sediment and particulate concentrations and clam and crayfish tissue results exhibit PCB concentrations above background results. Dissolved PCBs in the water column were detected in Pile #1 in two locations above the AWQC in samples collected while sediment was suspended. PCB Aroclors were not detected in the water column in SPMD samples taken during steady state conditions.

If sediments are suspended, temporary and localized release of contaminants may occur, making them available to aquatic biota. However, this limited exposure is not expected to cause adverse affects to aquatic biota through the mechanism of toxicity due to direct exposure or due to food web-mediated exposure.

Benthic invertebrates are exposed to PCBs via contaminated sediments. Sediment contamination and the resulting ecological risk is not expected to increase as a result of removal of equipment from the site. Instead, the magnitude of risk will be reduced by the removal of the continuing source of PCBs represented by the electrical equipment.

### 5.3 CONCEPTUAL SITE MODEL

The conceptual model based on the results of the in-water investigation is summarized as follows:

- a) Some of the PCB-containing electrical equipment disposed of into the Columbia River have leaked, and continue to leak, releasing PCBs into the water and sediment surrounding the waste disposal area.
- b) Little contaminated sediment is present in the disposal area, due to annual scouring (i.e., suspended and bedload transport of sediment) of the region when the dam spillway is open (generally during Spring runoff). Therefore, the detection of PCB contaminated sediment suggests in this area suggests a continuing source of PCBs to the environment.
- c) PCBs have impacted (through direct contact or accumulation of PCBs) benthic aquatic species in the disposal area.
- d) Due to the small volume of PCB equipment present, and the apparent low rate of release due to equipment leakage, only very low PCB concentrations are present in the water column (as dissolved component PCBs) under normal river conditions (below detection, based on SPMD data from the in-water investigation).
- e) Elevated PCBs will be present in the water column (as dissolved and particulate components) during the proposed electrical equipment removal (as well as during the anticipated Spring spill after the fish window), due to the release of PCBs from affected sediments that become entrained in the water column during the work (based on the water column data from the in-water investigation).